

REMARKS

Upon entry of the present amendment, claims 1-7, 9-13 and 15-19 will remain pending in the above-identified application and stand ready for further action on the merits. In the instant amendment claims 1, 10 and 18-19 are amended.

The amendments made herein to claims 1 and 10 do not incorporate new matter into the application as originally filed, since support for the same occurs in the original filed specification at page 17, in the paragraph beginning at line 9. The amendment to claim 10 also finds support at page 14, lines 22-25 wherein it is clearly disclosed that examples of the inorganic powder include alkali metal aluminosilicates.

Likewise, it is submitted that consideration of the instant amendment is entirely proper at present under the provisions of 35 USC § 116 as it does not raise any substantial new issues for the Examiner's consideration, presents rejected claims in better form for consideration on appeal by further differentiate the instant invention as claimed from the cited art of record.

Accordingly, entry of the instant amendment and proper consideration of pending claims 1-7, 9-13 and 15-19 is respectfully requested at present, since the instant amendment to the claims does not incorporate new matter into the application as originally filed.

Claim Rejections – 35 USC § 103

The USPTO is maintaining two separate rejections, each being previously responded to in Applicants reply of February 21, 2006. The two rejections are as follows.

Claims 1-7, 9-13 and 15-19 have been rejected under the provisions of 35 USC § 103(a) as being rendered obvious by Nitta *et al.* EP '269 (EP 936,269).

Claims 1-7, 9-13 and 15-19 have also been rejected under the provisions of 35 USC § 103(a) as being rendered obvious by Mort III, *et al.* US '354 (US 6,794,354).

Reconsideration of each of these maintained rejections is respectfully requested based on remarks set forth in the prior reply February 21, 2006 (*which are incorporated herein by reference in their entirety*) as well as the following considerations and the amendments made herein to pending claims 1 and 10.

The Present Invention and Its Advantages

As recited in pending claim 1, the present invention provides:

A process for preparing a high-bulk density detergent composition having a bulk density of 650 g/L or more, comprising the steps of:

(A) blending a liquid acid precursor of an anionic surfactant with a water-soluble, alkali inorganic substance in an amount equal to or exceeding an amount necessary for *neutralizing the liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate*, thereby neutralizing the liquid acid precursor, and carrying out step (B) after neutralizing the liquid acid precursor; and

(B) adding an inorganic powder and a liquid binder to a neutralization mixture in step (A) after a point of initiation of formation of coarse grains of the neutralization mixture obtained during a course of a neutralization process in step (A) and mixing a resulting mixture, *wherein prior to the addition of the liquid binder to the neutralization mixture, and then the inorganic powder is added to the neutralization mixture after the addition of the liquid binder to the neutralization mixture; and wherein the inorganic powder is added to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product.* (emphasis added)

Accordingly, instant amended claim 1 is now characterized by (i) “carrying out step (B) after neutralizing the liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate”, and (ii) in step (B) “the inorganic powder is added to the neutralization mixture prior to the addition of the liquid binder to the neutralization mixture, and then the inorganic powder is added to the neutralization mixture after the addition of the liquid binder to the neutralization mixture.”

In addition, claim 1 remains characterized by the addition of the inorganic powder and the liquid binder in step (B), after a point of initiation of formation of coarse grains" of the neutralization process in step (A).

Further, it is also characterized by *the addition of the inorganic powder to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition (which is the final product).*

The above limitations mean that step (B) is carried out **after** neutralization of the liquid acid precursor (*in a substantial absence of an alkali metal aluminosilicate*), and that the inorganic powder is added to the neutralization mixture *both prior to and after* the addition of the liquid binder to the neutralization mixture.

This means that the inorganic powder and the liquid binder are each added before or during agglomerating in order to depress the growth of extreme particles. It does *not* mean adding the inorganic powder and/or the liquid binder after agglomeration.

Once a quantity of an alkali metal aluminosilicate powder (such as zeolite) is added in the neutralization process, deterioration of the alkali metal aluminosilicate takes place, so that the detergency of the detergent composition is lowered. In addition, if the alkali metal aluminosilicate is added at once (e.g., all at one time), an aggregation of the alkali metal aluminosilicate takes place. Thus, the present inventors have been able to unexpectedly solve previously encountered problems by adding the inorganic powder (e.g., alkali metal aluminosilicate) *after* a point of initiation of formation of coarse grains of the neutralization mixture (having been obtained during course of a neutralization process *in a substantial absence of an alkali metal aluminosilicate*), and by adding it at several times (*i.e.*, not all at once).

Further, it is noted that by initiation of the addition of the inorganic powder at this point (i.e., *both prior to and after* the addition of the liquid binder to the neutralization mixture) there can be exhibited the effect of accelerating the disintegration effect of the neutralization mixture (e.g., see page 14, lines 4-16 and page 19, lines 1-5 of the instant specification). Still further, by addition of the liquid binder at this stage, the adhesiveness of the liquid binder to granular surfaces can be advantageously reduced, whereby granulation can be suppressed (see page 19, lines 1-5 of the specification).

According to the process of the present invention, a high-bulk density detergent composition comprising a granular mixture having a high-bulk density of 650 g/L or more can be obtained, wherein the detergent composition has both excellent detergent properties and a small particle size (see page 20, lines 15-18 of the specification).

It is additionally noted that claim 10 has been amended in the same fashion as claim 1, as follows:

A process for preparing a high-bulk density detergent composition having a bulk density of 650 g/L or more, comprising the steps of:

- (a) blending a liquid acid precursor of an anionic surfactant with a water-soluble, alkali inorganic substance in an amount equal to or exceeding an amount necessary for *neutralizing the liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate*, thereby neutralizing the liquid acid precursor, and carrying out step (b) after neutralizing the liquid acid precursor; and
- (b) adding an alkali metal aluminosilicate and a liquid binder to a neutralization mixture obtained in step (a) and mixing a resulting mixture, *wherein the alkali metal aluminosilicate is added to the neutralization mixture prior to the addition of the liquid binder to the neutralization mixture, and then the alkali metal aluminosilicate is added to the neutralization mixture after the addition of the liquid binder to the neutralization mixture; and wherein the alkali metal aluminosilicate is added to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product. (emphasis added)*

For the Examiner's information, it is noted that the recited addition requirements set forth for the "inorganic powder" (claim 1) and "alkali metal aluminosilicate" (claim 10) in independent process claims 1 and 10 (and the dependent claims that are based thereon) has unexpectedly allowed the applicants to advantageously control particle size in a manner that was not heretofore expected. Such a discovery and the advantageous particle size results that are associated therewith are more than simply the result of mere optimization, and are in no way obvious to those of ordinary skill in the art based on a review of the cited art references being applied by the USPTO against the pending claims.

Again, once a quantity of an alkali metal aluminosilicate (such as zeolite) is added in the neutralization process, a deterioration of the alkali metal aluminosilicate takes place, so that the detergency of the detergent composition being prepared is lowered. In addition, where the alkali metal aluminosilicate is added at once, an aggregation of the alkali metal aluminosilicate takes place.

The instant inventors have advantageously resolved these problems by adding the alkali metal aluminosilicate (i.e., inorganic powder) after a point of initiation of formation of coarse grains of the neutralization mixture, which coarse grains have been obtained during the course of a neutralization process taking place in a substantial absence of an alkali metal aluminosilicate, and by adding the alkali metal aluminosilicate (inorganic powder) at several times, and by not adding it all at once.

Legal Standard for Determining Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." In re Linter, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Lee, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002).

Distinctions Over the Cited Art

Nitta et al. EP '269

It is submitted that the cited Nitta et al. EP '269 reference does not teach or otherwise provide for each of the limitations recited in instant amended independent claims 1 and 10 (or any of the pending claims that depend therefrom).

More particularly, Nitta et al. EP '269 fails to provide any teaching regarding the precise timing of the addition of an "inorganic powder" (e.g., see independent claim 1) or an "alkali metal aluminosilicate" (e.g., see independent claim 10) or that by such a recited addition process, timing one can advantageously control particle size in the inventive methods and thereby arrive at a high-bulk density detergent composition having a bulk density of 650 g/L or more.

Nitta et al. EP '269 also completely *fails* to see any importance in neutralizing a liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate as is recited in step (A) of each of independent claims 1 and 10. Nitta et al. EP '269 also provides no teaching or motivation that would allow one skilled in the art to carry out the instantly claimed process including steps (A) and (B) as recited in each of pending claims 1 and 10.

Directing the USPTO's attention to Table 6 of Nitta EP '269, the comparative data set forth in Table 6 can be divided into two types. The first type is that of Comparative Examples 18-19; the second type is that of Comparative Examples 11-17.

More particularly, the comparative data set forth for Comparative Examples 18-19 is different from the instant invention being claimed in that a zeolite (inorganic powder) is added in the neutralization process from the start/beginning of the process. As such, this leads to a high possibility that deterioration of a zeolite takes place in Comparative Examples 18-19 of Nitta EP '269, so that the detergency of the resulting detergent composition would be lowered.

Likewise, the comparative data set forth for Comparative Examples 11-17 in Table 6 of Nitta EP '269 shows that no zeolite is used in the neutralization process. Table 6 of Nitta EP '269 also shows that at most only 4.2 wt% of zeolite is added in the subsequent process steps of Comparative Examples 11-17.

For the Examiner's convenience a copy of Table 6 of Nitta EP '269 is set forth below.

Table 6									
Composition (parts by weight)	Comparative Examples								
	11	12	13	14	15	16	17	18	19
Powder Blending									
STPP	7.00	7.00	7.00	7.00	7.00	7.70	7.70	-	-
Sodium Carbonate	13.05	13.68	12.20	11.00	10.10	13.26	14.34	14.34	13.22
Zeolite	-	-	-	-	-	-	-	7.70	7.70
Powdery Sodium Sulfate	-	-	0.90	-	-	-	-	-	-
Fluoreacer	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Addition of Reaction Initiating Agent									
48 wt%-Aqueous NaOH Solution	0.51	-	0.51	0.61	0.66	0.37	0.27	0.27	-
Neutralization									
LAS	10.19	10.19	10.19	12.22	13.24	7.47	5.43	5.43	10.19
98 wt% Sulfuric Acid	-	-	-	-	-	-	-	-	-
85 wt% Phosphoric Acid	-	-	-	-	-	-	-	-	-
(Amount of Gas Blown) [L/min]	300	300	300	300	300	300	300	300	300
Fatty Acid	-	-	-	-	-	0.49	0.49	0.49	-
Nonionic Surfactant	-	-	-	-	-	1.40	2.45	2.45	-
Addition of Liquid Ingredients and Surface Modification									
Acrylic Acid-Maleic Acid Copolymer	0.44	0.44	0.44	0.44	0.44	-	-	-	0.44
Zeolite	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
After-Blending									
Enzyme	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Perfume	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Molar Ratio of Inorganic Acid/Liquid Acid Precursor [mol/mol]	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.04

As such, it is submitted that the teachings and disclosure of Nitta et al. EP '269 are incapable of either anticipating or rendering obvious the instant invention as claimed.

Mort III, et al. US '354

It is submitted that the cited Mort III, et al. US '354 reference does not teach or otherwise provide for each of the limitations recited in instant amended independent claims 1 and 10 (or any of the pending claims that depend therefrom).

More particularly, Mort III, et al. US '354 fails to provide any teaching regarding the timing of the addition of an "inorganic powder" (*e.g., see independent claim 1*) or of an "alkali metal aluminosilicate" (*e.g., see independent claim 10*) or that by such a timing one can advantageously control particle size in the inventive methods and thereby arrive at a high-bulk density detergent composition having a bulk density of 650 g/L or more.

Mort III, et al. US '354 also completely *fails* to see any importance in neutralizing a liquid acid precursor, in a substantial absence of an alkali metal aluminosilicate as is recited in step (A) of each of independent claims 1 and 10. Mort III, et al. US '354 also provides no teaching or motivation that would allow one skilled in the art to carry out the instantly claimed process including steps (A) and (B) as recited in each of pending claims 1 and 10.

As such, the teachings and disclosure of Mort III, et al. US '354 are incapable of either anticipating or rendering obvious the instant invention as claimed.

Additional Comments

In support of the above contentions of non-obviousness over Nitta et al. EP '269 and Mort III, et al. US '354, one need only look at Example 1 of the instant invention (*see pages 24-26 of the instant specification*) and particularly the penultimate paragraph of Example 1 (*i.e., see page 24, lines 15-19 of the specification*), wherein it is disclosed as follows regarding the high-

density detergent composition of Example 1, which was prepared in accordance with the instantly claimed inventive process.

The granules of the resulting detergent composition had an average particle size of 640 μm , a bulk density of 795 g/L, and a flowability of 7.1 seconds, whereby showing excellent powder properties. In addition, the granules had a relative ratio for the detergency rate of 0.998, whereby showing excellent detergency.

Apart from the above considerations, it is also noted that neither of Nitta et al. EP '269 or Mort III, et al. US '354, which are being applied against the currently pending claims employ or render obvious the use of an inorganic powder (*or* alkali metal aluminosilicate *or* zeolite) in an amount as instantly recited in pending independent claims 1 and 10 [*i.e., wherein the inorganic powder (claim 1) or alkali metal aluminosilicate (claim 10) is added to the neutralization mixture in step (B) in an amount of 8 to 50% by weight of the high-bulk density detergent composition, which is the final product*].

Accordingly, because the cited art of Nitta et al. EP '269 and Mort III, et al. US '354, do not provide any teaching which would motivate one of ordinary skill in the art to arrive at the instant invention as claimed in instant process claims 1 and 10, it follows that neither reference is capable of supporting an obviousness rejection of any of the pending claims. This conclusion is buttressed or supported by the unexpected and advantageous properties that are possessed by the high-density detergents (*e.g., Example 1 in the instant specification*) that can be produced with the instant inventive processes.

All contentions of non-obviousness held by the US PTO over the above cited art must be reconsidered, as the same contentions are not sustainable, in view of the amendments to the claims and remarks that are presented herein.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that all pending claims 1-7, 9-13 and 15-19 are allowable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application; the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: September 8, 2006

Respectfully submitted,

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